



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/720,953	02/13/2001	Kiyotaka Tsukada	232.001	9007

7590 07/05/2002

James F Boyle
Boyle Fredrickson Ziolkowski
250 Plaza Suite 1030
250 East Wisconsin Avenue
Milwaukee, WI 53202

EXAMINER

NORRIS, JEREMY C

ART UNIT PAPER NUMBER

2827

DATE MAILED: 07/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/720,953

Applicant(s)
TSUKADA et al

Examiner
Jeremy Norris

Art Unit
2827



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 6-8, 10, 12, and 13 is/are rejected.
- 7) ☒ Claim(s) 3, 5, 9, and 11 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirements.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ | 6) <input type="checkbox"/> Other: |

Art Unit: 2827

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

- (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
- (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claim 1, 2, 4, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,346,678, granted to Kono et al. (hereafter US '678).

US '678 discloses, referring to figures 13A-D, a method of manufacturing a printed circuit board comprising the steps of coating a lower surface and an upper surface of an insulating substrate (1) respectively with a lower surface metal foil (3, 9) and an upper surface metal foil (2), the thickness of which is less than that of the lower surface metal foil; forming an opening (5) in the upper surface metal foil at a location corresponding to a blind via hole formation portion (10) of the insulative substrate; forming a blind via hole (10), the bottom of which is the lower surface metal foil, by emitting a laser (see col. 9, lines 40-45) against the blind

Art Unit: 2827

via hole formation portion through the opening; applying a conductor to the blind via hole (see figure 3); and forming an upper surface pattern and a lower surface pattern by respectively etching the upper surface metal foil and the lower surface metal foil (see col. 9, lines 30-35) [claims 1, 2], wherein the upper surface and lower surface metal foil coating step includes a step for coating the upper surface and the lower surface, respectively, with an upper surface metal foil and a lower surface metal foil that have the same thickness, and a step for further coating the lower surface metal foil with a metal plating film (9) [claims 4, 10]

3. Claim 8 rejected under 35 U.S.C. 102(b) as being anticipated by US 4,964,212, granted to Deroux-Dauphin et al. (hereafter US '212).

US '212 discloses, referring to figure 7 a printed circuit board comprising: an insulative substrate (10); an upper surface pattern (32) and a lower surface pattern (36) provided, respectively, on an upper surface and a lower surface of the insulative substrate; and a blind via hole for electrically connecting the upper surface pattern and the lower surface pattern, wherein an upper portion of the blind via hole is opened and a bottom of the blind via hole is covered by the lower surface pattern, the thickness of the upper surface pattern being less than that of the lower surface pattern [claim 8]. Examiner notes that the terms "upper" and "lower" are only functions of a particular orientation of the device and not an inherent property. Therefore, either surface may be considered "upper" or "lower" so long as a consistent scheme is utilized.

Art Unit: 2827

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 6, 7, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US '678.

US '678 discloses the claimed invention as described above with respect to claims 1 and 2, except US '678 does not specifically disclose that the thickness of the upper surface pattern is 2 to 12 micrometers [claims 6, 12] or that the thickness of the lower surface pattern is 15 to 25 micrometers [claims 7, 13]. However, it would have been obvious, to one having ordinary skill in the art to size the patterns to whatever sizes is required to meet both the physical

Art Unit: 2827

and conductive requirements of the device. Moreover, a change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237.

Response to Arguments

6. Applicant's arguments with respect to claims 1, 2, 4, 6-8, 10, 12, and 13 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

7. Claims 3, 5, 9 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: Claims 3 and 9 state the limitation "a step for etching the upper surface metal foil. This limitation, in conjunction with the other claimed features was not found to be disclosed in nor suggested by the prior art. Claims 5 and 11 state the limitation "performing a sandblast treatment to the upper surface metal foil". This limitation, in conjunction with the other claimed features was not found to be disclosed in nor suggested by the prior art.

Art Unit: 2827

9.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Norris whose telephone number is 703-306-5737. The examiner can normally be reached on Mon.-Th., 9AM - 6:30 PM and alt. Fri. 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7724 for regular communications and 703-305-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JCSN

July 1, 2002



**KAMAND CUNEO
PRIMARY EXAMINER**